

## Q-Switched High Power Single Frequency 2 Micron Fiber Laser, Phase I

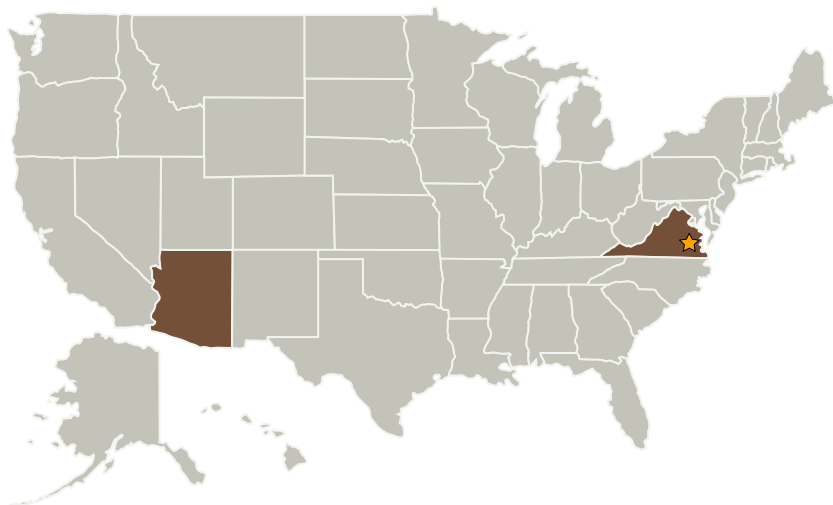
Completed Technology Project (2009 - 2009)



## Project Introduction

Accurate measurement of atmospheric parameters with high resolution needs advanced lasers. In this SBIR program we propose to develop innovative Q-switched high power 2-micron fiber laser with pulse energy greater than 10mJ, repetition rate of 10Hz to 1KHz, and pulse duration of 200ns using innovative highly efficient Tm-doped glass fiber. This new fiber laser will be an all-fiber laser system consisting of actively Q-switched fiber laser and fiber amplifiers. This proposed all-fiber laser system is compact, highly efficient, robust and highly reliable, which is especially suited for NASA's application where operating environment is always extremely rough. In Phase I we will design and fabricate Tm-doped glasses, design and fabricate single mode and double cladding single mode Tm-doped fibers, and demonstrate Q-switched single frequency 2-micron fiber laser and amplifiers.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
AdValue Photonics, Inc.	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Tucson, Arizona



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## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Center / Facility:

Langley Research Center (LaRC)

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

Arizona

Virginia

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.5 Lasers